

## Features

50 mm IO-Link Controlled Multicolor RGB Tower Light

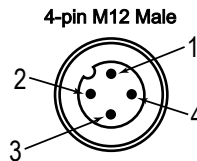
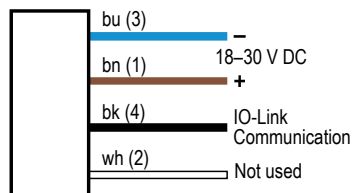


- Rugged, cost-effective, and easy-to-install 3- and 4-segment tower lights
- Illuminated segments provide easy-to-see operator guidance and indication of equipment status
- IO-Link gives full access to color, flashing, and dimming settings, as well as advanced animations like run and level modes that provide a dynamic response to changing machine conditions
- Audible models available with an omnidirectional audible element
- 18 V DC to 30 V DC operation
- No assembly required

## Models

Family	Style	Number of Segments	Audible Alarm	Control	Connection
TL50	PS	3	A	K	Q
	PS = Pro Select	3 = 3 segments 4 = 4 segments	Blank = None A = Omnidirectional sealed audible	K = IO-Link	Q = Integral 4-pin M12 male quick-disconnect connector

## Wiring Diagram



**Key**  
 1 = Brown  
 2 = White  
 3 = Blue  
 4 = Black

## IO-Link Process Data Out (Master to Device)

IO-Link® is a point-to-point communication link between a master device and a sensor and/or light. It can be used to automatically parameterize sensors or lights and to transmit process data. For the latest IO-LINK protocol and specifications, please visit [www.io-link.com](http://www.io-link.com).

For the latest IODD files, please refer to the Banner Engineering Corp website at: [www.bannerengineering.com](http://www.bannerengineering.com).

### Basic Segment Mode

Use process data to set each segment to off, solid on, flash, or animation mode. Use parameter data to change color, intensity, flash speed, and select animation type.

### Advanced Segment Mode

Use process data to activate each segment and control color, intensity, flash, and other animation types. Use parameter data to create custom colors, intensity, and flash speeds.

### Run Mode

Use process data to control entire tower light and select color, intensity, flash and run mode animations. Use parameter data to create custom colors, intensity, and flash speeds.

Animation	Description
Off	Segment is off
Steady	Color 1 is solid on at defined intensity
Flash	Color 1 flashes at defined speed, color intensity, and pattern (normal, strobe, three pulse, SOS, or random)
Two Color Flash	Color 1 and Color 2 flash alternately at defined speed, color intensities, and pattern (normal, strobe, three pulse, SOS, or random)
Intensity Sweep	Color 1 repeatedly increases and decreases intensity between 0% to 100% at defined speed and color intensity

### Level Mode

Use process data to set the level value. Use parameter data to set range, thresholds, colors, intensities, flash speeds, and animation types.

Animation	Description
Level Mode Value	Value of the level of the tower (between 0 to 65,535)

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Animation	Description
<b>Full-Scale Value</b>	Set the upper limit of the Level Mode Value (between 0 to 65535)
<b>Threshold Type: None</b>	Level Mode Values are displayed on tower as defined by Base color, intensity, and state (steady or flashing).
<b>Threshold Type: Low</b>	Level Mode Values below Low Threshold Value are displayed on segments defined by Low Threshold color, intensity, and state (steady or flashing). Level Mode Values above Low Threshold Value are displayed on segments defined by Base color, intensity, and state (steady or flashing).
<b>Threshold Type: High</b>	Level Mode Values below High Threshold Value are displayed on segments defined by Base color, intensity, and state (steady or flashing). Level Mode Values above High Threshold Value are displayed on segments defined by High Threshold color, intensity, and state (steady or flashing).
<b>Threshold Type: High and Low</b>	Level Mode Values below Low Threshold Value are displayed on segments defined by Low Threshold color, intensity, and state (steady or flashing). Level Mode Values between Low and High Threshold Values are displayed on segments defined by Base color, intensity, and state (steady or flashing). Level Mode Values above High Threshold Value are displayed on segments defined by High Threshold color, intensity, and state (steady or flashing).
<b>Base, Low Threshold, High Threshold, and Background</b>	Colors, Intensities, and States - Set the colors, intensities, and states (steady or flash) the tower will display if the Level Mode Value conforms to the defined threshold type
<b>Dominance</b>	If Non-Dominant is defined, segments display their defined threshold color; if Dominant is defined, all segments display the active threshold color
<b>Segment Style</b>	If Level Mode Value is a partial percentage of a segment, select if segment will be on steady, flashing, or analog dimmed to the partial percentage

## Specifications

### Supply Voltage and Current

18 V DC to 30 V DC  
 Maximum current per LED segment:  
 62 mA at 18 V DC  
 50 mA at 24 V DC  
 44 mA at 30 V DC  
 Maximum current for Omni-Directional Sealed  
 Audible: 45 mA

### Supply Protection Circuitry

Protected against reverse polarity and transient voltages

### Environmental Rating

IP65, UL Type 4X

### Vibration and Mechanical Shock

Vibration: 10 Hz to 55 Hz, 1.0 mm peak-to-peak amplitude per IEC 60068-2-6  
 Shock: 30G 11 ms duration, half sine wave per IEC 60068-2-27

### Audible Alarm

3.1 kHz ± 500 Hz oscillation frequency  
 Intensity: 93 dB at 1 m (typical)

### Input Response Time

Indicator On/Off Response Time: 20 ms (maximum)

### Connections

Integral 4-pin M12 male quick-disconnect connector

### Construction

Bases, Covers, Light Segment: Polycarbonate

### Operating Conditions

**Non-Audible:** -40 °C to +50 °C (-40 °F to +122 °F)

**Audible:** -20 °C to +50 °C (-4 °F to +122 °F)  
 95% at +50 °C maximum relative humidity (non-condensing)

### Certifications



Banner Engineering BV  
 Park Lane, Culliganlaan 2F bus 3  
 1831 Diegem, BELGIUM



### Required Overcurrent Protection



**WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced. For additional product support, go to [www.bannerengineering.com](http://www.bannerengineering.com).

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	1.0	30	0.5

### Indicator Characteristics

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates <sup>(1)</sup>		Lumen Output Per Segment (Typical at 25 °C)
		X	Y	
Red	620	0.668	0.318	8.4
Green	522	0.195	0.71	15.5
Yellow	576	0.455	0.5	22.4
Blue	466	0.139	0.083	3.8
Magenta	—	0.37	0.185	10
Cyan	493	0.163	0.352	17.1
White	5700 K	0.326	0.347	24.4
Amber	589	0.539	0.431	15.1
Rose	—	0.494	0.238	8.4
Lime Green	562	0.367	0.567	18.8
Orange	599	0.6	0.382	11.6
Sky Blue	486	0.153	0.262	16.7
Violet	—	0.223	0.119	6.6

Continued on page 3

<sup>(1)</sup> Refer to CIE 1931 chromaticity diagram or color chart to show equivalent color with indicated color coordinates

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Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates		Lumen Output Per Segment (Typical at 25 °C)
		X	Y	
Spring Green	508	0.18	0.52	15.8

## FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

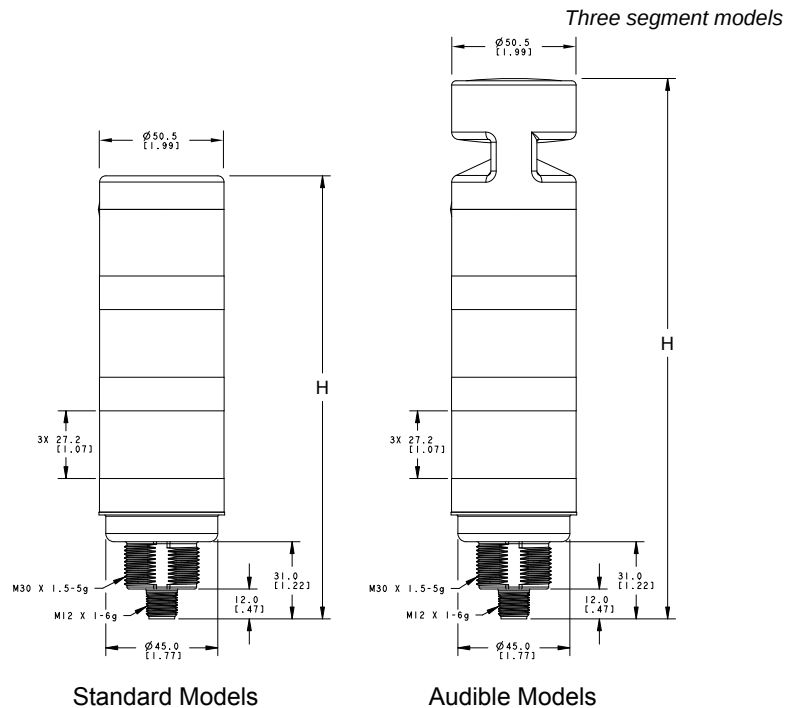
## Industry Canada ICES-003(B)

This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

## Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

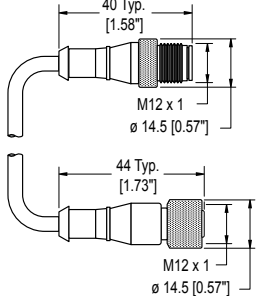
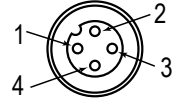
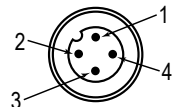



*Standard non-audible and audible (dimension H)*

Segments	Standard Non-Audible Models (H)	Audible Models (H)
Three	178.1 mm (7.01 in)	217.2 mm (8.55 in)
Four	219.1 mm (8.63 in)	257.2 mm (10.13 in)

## Accessories

### Cordsets

4-Pin Double-Ended M12 Female to M12 Male Cordsets				
Model	Length	Style	Dimensions	Pinout
MQDEC-401SS	0.31 m (1 ft)	Male Straight/Female Straight		Female
MQDEC-403SS	0.91 m (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			Male
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-415SS	4.58 m (15 ft)			1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30.2 ft)			
MQDEC-450SS	15.2 m (49.9 ft)			

### Mounting Brackets

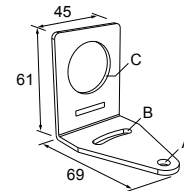
All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

#### SMB30A

- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-gauge stainless steel

**Hole center spacing:** A to B=40

**Hole size:** A=ø 6.3, B= 27.1 × 6.3, C=ø 30.5

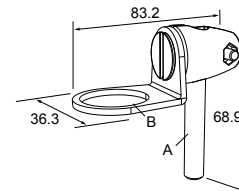


#### SMB30FA

- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-gauge 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric- and inch-size bolt available

**Bolt thread:** SMB30FA, A= 3/8 - 16 × 2 in; SMB30FAM10, A= M10 - 1.5 × 50

**Hole size:** B= ø 30.1

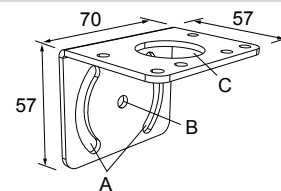


#### SMB30MM

- 12-gauge stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor

**Hole center spacing:** A = 51, A to B = 25.4

**Hole size:** A = 42.6 × 7, B = ø 6.4, C = ø 30.1

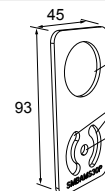


#### SMBAMS30P

- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge 300 series stainless steel

**Hole center spacing:** A=26.0, A to B=13.0

**Hole size:** A=26.8 × 7.0, B=ø 6.5, C=ø 31.0

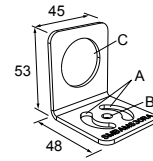


**SMBAMS30RA**

- Right-angle SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge (2.6 mm) cold-rolled steel

**Hole center spacing:** A=26.0, A to B=13.0

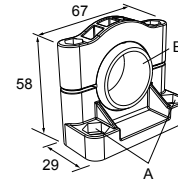
**Hole size:** A=26.8 × 7.0, B=∅ 6.5, C=∅ 31.0


**SMB30SC**

- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included

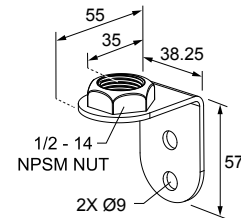
**Hole center spacing:** A=∅ 50.8

**Hole size:** A=∅ 7.0, B=∅ 30.0


**LMBE12RA35**

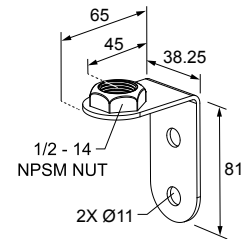
- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm

**Hole center spacing:** 20.0


**LMBE12RA45**

- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 45 mm

**Hole center spacing:** 35.0



## LMB Sealed Right-Angle Bracket


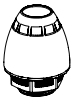
Model	Description	
<b>LMB30RA</b> - Black polycarbonate <b>LMB30RAC</b> - Gray polycarbonate	<ul style="list-style-type: none"> <li>• <b>Direct-Mount Models</b></li> <li>• Bracket kit with base, 30 mm adapter, set screw, fasteners, O-rings, and gaskets.</li> </ul>	
<b>LMBE12RA</b> - Black polycarbonate <b>LMBE12RAC</b> - Gray polycarbonate	<ul style="list-style-type: none"> <li>• <b>Pipe-Mount Models</b></li> <li>• Bracket kit with base, 1/2-14 pipe adapter, set screw, fasteners, O-rings, and gaskets</li> <li>• For use with stand-off pipe (listed and sold separately)</li> </ul>	

## Elevated Mount System

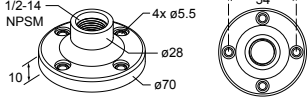
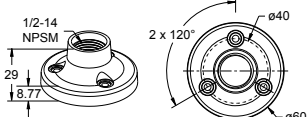
Model	Description	Components
<b>SA-M30TE12</b> - Black ABS  <b>SA-M30TE12C</b> - White UHMW	<ul style="list-style-type: none"> <li>• Streamlined black ABS or white UHMW stand-off pipe adapter/cover</li> <li>• Connects between 30 mm light base and 1/2 in. NPSM/DN15 pipe</li> <li>• Mounting hardware included</li> </ul>	

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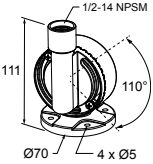
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Model			Description	Components
Polished 304 Stainless Steel	Black Anodized Aluminum	Clear Anodized Aluminum	<ul style="list-style-type: none"><li>Elevated-use stand-off pipe (½ in. NPSM/DN15)</li><li>Polished 304 stainless steel, black anodized aluminum, or clear anodized aluminum surface</li><li>½ in. NPT thread at both ends: one end screws into the internal threads of the light's base, and one end screws into the mounting base adapter/cover</li><li>Compatible with most industrial environments</li></ul>	
SOP-E12-150SS	SOP-E12-150A	SOP-E12-150AC		
150 mm (6 in) long	150 mm (6 in) long	150 mm (6 in) long		
SOP-E12-300SS	SOP-E12-300A	SOP-E12-300AC		
300 mm (12 in) long	300 mm (12 in) long	300 mm (12 in) long		
SOP-E12-900SS	SOP-E12-900A	SOP-E12-900AC	<ul style="list-style-type: none"><li>Streamlined black ABS or white UHMW mounting base adapter/cover</li><li>Connects between ½ in. NPSM/DN15 pipe and 30 mm (1-3/16 in) drilled hole</li><li>Mounting hardware included</li></ul>	
900 mm (36 in) long	900 mm (36 in) long	900 mm (36 in) long		
SA-E12M30 - Black ABS				
SA-E12M30C - White UHMW				

## Pipe Mounting Flange

Pipe Mounting Flange			
Model	Description	Construction	
<b>SA-F12</b>	<ul style="list-style-type: none"> <li>Elevated-use stand-off pipes (½ in. NPSM/DN15)</li> <li>M5 mounting hardware and nitrile gasket included</li> </ul>	Die-cast zinc base with black paint	
<b>SA-F12-3</b>	<ul style="list-style-type: none"> <li>Elevated-use stand-off pipes (½ in. NPSM/DN15)</li> <li>M4 mounting hardware and nitrile blend gasket included</li> </ul>	Black Polycarbonate	

## Foldable Mounting Brackets

Foldable Mounting Brackets			
Model	Description	Construction	
<b>SA-FFB12</b>	<ul style="list-style-type: none"> <li>For use with 1/2 inch stand-off pipes</li> <li>Stainless steel hardware</li> </ul>	Black polycarbonate	
<b>SA-FFB12C</b>		Gray polycarbonate	

## Banner Engineering Corp Limited Warranty

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